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DSSD CENSUS 2000 PROCEDURES AND OPERATIONS MEMORANDUM SERIES B-9

MEMORANDUM FOR Howard Hogan
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Sample Design Team

Subject: Accuracy and Coverage Evaluation Survey: Dual System Estimation Results (Prototype)

The attached document is a prototype of the report that we will prepare, per your request, following completion of applicable Accuracy and Coverage Evaluation Survey (A.C.E.) operations. The completed report is intended to aid the Executive Steering Committee on A.C.E. Policy (ESCAP) in its recommendation regarding the release of the statistically corrected data or the data without statistical correction as the P.L. 94-171 data. This report, together with other reports, will assess the operations and results of both the initial Census and the A.C.E. Both sets of assessments will be available to the ESCAP to aid the Committee in reaching its recommendation regarding the use of the statistically corrected data.

The attached prototype contains both empty table shells and a description of textual analysis that will assess specific aspects of the applicable operations. This report focuses on the summary results of the dual system estimates and the coverage correction factors for the 448 post-strata along with a review of the dual system estimation methodology and the results of the estimation of the dual system estimate components.

It is important to note that the conduct of the operations may lead us to modify the attached format by including additional information. It is also likely that descriptions and definitions will be enhanced or the data items could undergo revision. Conversely, we may conclude, for a variety of reasons, that some of the information set forth in the attached prototype may not be available. The attached document sets forth our conclusions prior to completion of the A.C.E. about what information would properly inform the ESCAP on this subject, but is subject to modification.

Accuracy and Coverage Evaluation 2000: Dual System Estimation Results

prepared by Peter P. Davis

Introduction

The Accuracy and Coverage Evaluation (A.C.E.) Survey relies on dual system estimation to estimate coverage in Census 2000. The Census Bureau obtains a roster from the A.C.E. block clusters independently of the census. The independent roster (P Sample) and the census roster (E Sample) are matched; the results of the matching and followup interviewing are used to estimate the total number of persons reflecting the coverage of the census, either a net undercount or net overcount. Estimates are calculated separately within population subgroups called post-strata. Post-stratum estimates are then used to determine coverage factors applied to all people counted in the census according to their specific post-stratum.

This report documents the dual system estimation results for the 2000 A.C.E. for the 50 states and the District of Columbia. The results, provided in the attached tables, show coverage estimates, the dual system estimation component estimates and sample sizes, and estimated sampling variance measures. This detailed information is given for all 2000 A.C.E. post-strata. Summary information is included for the seven Race/Origin Domains with Tenure and separately for Age/Sex Groups. Additionally, some summary information for the 1990 Post-Enumeration Survey (PES) is also included. The text of this report address formulae, movers, post-stratification, and a description of the results.

Overall Assessment

Prototype Note: An overall assessment will be added once the data is available.

Estimates of Population and Coverage

This document reports three estimates.

Population estimate:

- Dual System Estimate (DSE)

Coverage estimates:

- Coverage Correction Factor (CCF)
- Net Undercount Percent (UC)

Dual System Estimate. For a given post-stratum, the formula for the dual system estimate is as follows:

$$DSE = (C - II)\left(\frac{CE}{N_e}\right)\left(\frac{N_p}{M}\right) \quad (1)$$

where

C	=	the census count;
II	=	the number of census people with insufficient information;
CE	=	the estimated number of correct enumerations from the E Sample;
N_e	=	the estimated number of people from the E Sample;
N_p	=	the estimated total population from the P Sample;
M	=	the estimated number of persons from the P-sample population who match to the Census.

Persons in Group Quarters and the Remote Alaska type of enumeration area are excluded from the 2000 A.C.E., and thus from the above numbers. For the 1990 PES, persons in the Remote Alaska type of enumeration area were excluded while persons from Group Quarters were included in these numbers.

The 2000 A.C.E. and the 1990 PES differ procedurally in their treatment of movers; that is persons whose location at the time of the survey interview differ from their location on Census Day. See the section on Movers.

Coverage Correction Factor. The coverage correction factor (CCF) is a measure of correction to assess the degree of net overcount or net undercount of the household population within the Census. The coverage correction factor (CCF) for a post-stratum is the ratio of the DSE over the census count.

$$CCF = \frac{DSE}{C} \quad (2)$$

For example, a coverage correction factor of 1.05 would imply that for every 100 people within the given post-stratum, there is a net undercount of five persons.

Net Undercount Percent (for the Household Population). The net undercount percent (UC) is the estimated net undercount (or net overcount) divided by the dual system estimate for a post-stratum expressed as a percentage. A positive number implies undercoverage while a negative number implies overcoverage. The net undercount percent shown in this document is strictly for the household population and excludes Group Quarters.

$$UC = \left[\frac{DSE - C}{DSE}\right] \times 100 \qquad (3)$$

Movers

Some persons will move between Census Day and A.C.E. interview day. A mover is a person whose housing unit on A.C.E. interview day differs from that on Census Day.

For the 2000 A.C.E., movers are treated by Procedure C (PES-C). This procedure identifies all current residents living or staying in the housing unit at the time of the A.C.E. interview (nonmovers and inmovers). In addition, all other persons who lived in the housing unit on Census Day who have since moved (outmovers) are identified. For outmovers, the interviewer attempts a proxy interview to obtain data such as name, sex, and age which will be used for matching. The mover match rate is obtained using outmover match rates. On the other hand, the number of movers in the P Sample for A.C.E. sample areas is estimated using inmovers. No matching is conducted for inmovers.

Occasionally, it is necessary to treat movers using Procedure A (PES-A) for the 2000 A.C.E. This occurs when the number of outmovers is small, less than 10 outmovers in a post-stratum. This procedure uses the outmover information to estimate both the mover match rate and the number of movers.

In 1990, movers were treated using Procedure B (PES-B). This procedure identifies all current residents living or staying in the housing unit at the time of the PES interview. The respondent is asked to provide the address(es) where these persons were living or staying on Census Day. These person are then matched. Estimates of the number and percent matched for nonmovers and inmovers can be made.

Post-stratification

Post-stratification or grouping of individuals likely to have similar inclusion probabilities and the calculation of DSEs within post-stratum is done to decrease correlation bias. The post-stratification design for Census 2000 A.C.E. is given in Haines (2000a).

In Attachment A, Table A-1 shows the 64 post-stratum groups for the 2000 A.C.E. Nine variables define the 64 post-stratum groups: race, Hispanic origin, age, sex, tenure, Metropolitan Statistical Area, type of enumeration area, return rate, and region. Within each post-stratum group, there are seven age/sex groups (See Attachment A, Table A-2) Thus, there is a maximum of $64 \times 7 = 448$ post-strata. There will be fewer post-strata if a post-stratum is deemed too small.

For post-stratification, persons are classified into one of seven Race/Hispanic Origin domains. (See Table A-1, first column.) The seven Race/Hispanic Origin domains are determined in a hierarchical manner:

Domain 1 (American Indian or Alaska Native on reservations) includes:

- Any person living on a reservation indicating American Indian or Alaska Native either as their single race or as one of many races, regardless of their Hispanic origin.

Domain 2 (American Indian or Alaska Native off reservations) includes:

- Any person living in Indian Country[1] but not on a reservation who indicates American Indian or Alaska Native either as their single race or as one of many races, regardless of their Hispanic origin.

- Any non-Hispanic person not living in Indian Country who indicates American Indian or Alaska Native as their single race.

Domain 3 (Hispanic) includes:

- All Hispanic persons who are not included in Domains 1 or 2.

- All Hispanic persons who self-identify with three or more races (excluding American Indian or Alaska Native in Indian Country).

- All Hispanic persons who do not live in the state of Hawaii who classify themselves as Native Hawaiian or Pacific Islander, regardless of whether they identify with a single or multiple race.

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[1] Indian Country is land considered (either wholly or partially) on an American Indian reservation/trust land, Tribal Jurisdiction Statistical Area, Tribal Designated Statistical Area, or Alaska Native Village Statistical Area. For Census 2000, Tribal Jurisdiction Statistical Area has been formally renamed as Oklahoma Tribal Statistical Area.

Domain 4 (Non-Hispanic Black) includes:

- Any non-Hispanic person who indicates Black as their only race.
- Any person identifying with a combination of Black and American Indian or Alaska Native not in Indian Country.
- Any person who indicates Black and another single race group (Native Hawaiian or Pacific Islander, Asian, White, or "Some other race").
- All Non-Hispanic Black persons who do not live in the state of Hawaii who classify themselves as Native Hawaiian or Pacific Islander.

Domain 5 (Native Hawaiian or Pacific Islander) includes:

- Any non-Hispanic person indicating the single race Native Hawaiian or Pacific Islander.
- Any non-Hispanic person who identifies with the race combination of Native Hawaiian or Pacific Islander and American Indian or Alaska Native not in Indian Country.
- Any non-Hispanic person who identifies with the race combination of Native Hawaiian or Pacific Islander and Asian.
- All persons living in the state of Hawaii who classify themselves as Native Hawaiian or Pacific Islander, regardless of their Hispanic origin and whether they identify with a single or multiple race.

Domain 6 (Non-Hispanic Asian) includes:

- Any non-Hispanic person indicating Asian as their single race.
- Any person who self-identifies with Asian and American Indian or Alaska Native not in Indian Country.

Domain 7 (Non-Hispanic White or "Some other race") includes:

- Any Non-Hispanic person indicating White or "Some other race" as their single race.
- Any Non-Hispanic person who self-identifies with both American Indian or Alaska Native not in Indian Country and White or "Some other race."

- Any person who self-identifies with Asian and White or Asian and "Some other race."

- Any non-Hispanic person who self-identifies with three or more races (excluding American Indian or Alaska Native in Indian Country).

- Any Non-Hispanic White or Non-Hispanic "Some other race" person who classifies themselves as Native Hawaiian or Pacific Islander but does not live in Hawaii, regardless of whether they identify with other races.

Collapsing Post-strata

Collapsing post-strata is necessary when A.C.E. P-sample sizes are not adequate. A post-stratum is deemed too small if it contains fewer than 100 P-sample nonmovers and outmovers. The rules for collapsing post-strata are given in Haines (2000a and 2000b).

Prototype Note: the results of collapsing will be added once the data is available.

Estimation Results

Results of the dual system estimation are provided in the attached tables outlined below. Each table provides the coverage estimates and the component estimates that went into the calculations. Measures of the estimated sampling error and sample sizes are provided as well.

The tables are organized as follows:

Attachment	Tables	Description
B	B-1 through B-3	2000 A.C.E. results for the 7 Race/Hispanic Origin Domains by Total, Owner, Non-Owner.
B	B-4	2000 A.C.E. results for the 7 Age/Sex groups.
C	C-1 through C-3	1990 PES results for the 5 Race/Origin Groups by Total, Owner, Non-Owner.
C	C-4	1990 PES results for the 7 Age/Sex groups.
D	D-1 through D-64	2000 A.C.E. results for the 7 Age/Sex groups by the 64 Post-stratum groups.

Attachment E provides the net undercount percent and the coefficient of variation for the 64 post-stratum groups.

Attachment	Tables	Description
E	E-1	2000 A.C.E. results of the UCs by Post-stratum group.
E	E-2	2000 A.C.E. results of the CVs by Post-stratum group.

The following definitions describe each element included in the 2000 A.C.E. tables located in Attachments B and D. The numbers in these tables do not include Group Quarters.

Data-Defined Persons (DD):

This concept is defined for all census persons. A data-defined person is a person who has two or more of the 100 percent data items answered on their census form. These items include name, age, sex, race, and Hispanic origin. Relationship to person 1 is also a 100 percent data item for all persons except person 1.

Insufficient Information (II):

Those persons in the census for whom there is insufficient information for inclusion in the E Sample. This category includes non-data-defined persons and persons in whole household imputations in which all of the information for a household is created from a nearby household with similar characteristics.

Total Persons (C):

This is the census count of persons. This is the sum of Data-Defined persons and Insufficient Information persons.

Nonmover sample size:

The number of P-sample persons who lived in the A.C.E. housing unit on Census Day and on the day of the A.C.E. interview. This is a count of nonmovers with a residence probability greater than zero; that is, a nonmover count of confirmed residents and unresolved residents.

Inmover sample size:

The number of P-sample persons who lived in the A.C.E. housing unit on the day of the A.C.E. interview, but lived elsewhere on Census Day.

Outmover sample size:

The number of P-sample persons who lived in the A.C.E. housing unit on Census Day, but moved elsewhere before the A.C.E. interview. This is a count of outmovers with a residence probability greater than zero; that is, an outmover count of confirmed residents and unresolved residents.

Weighted Nonmovers (N_n):

The weighted total population size for P-sample nonmovers. These weights reflect the sample design, Census Day noninterview adjustment and Targeted Extended Search sampling.

Weighted Inmovers (N_i):

The weighted total population size for P-sample inmovers. These weights reflect the sample design and the A.C.E. Interview Day adjustment.

Weighted Outmovers (N_o):

The weighted total population size for P-sample outmovers. These weights reflect the sample design, Census Day noninterview adjustment, and Targeted Extended Search sampling.

Weighted Nonmover Matches (M_n):

The estimated number of P-Sample nonmover matches. This is the weighted sum of match probabilities where the weights reflect the sample design, the Census Day noninterview adjustment, and Targeted Extended Search sampling.

Weighted Outmover Matches (M_o):

The estimated number of P-Sample outmover matches. This is the weighted sum of match probabilities where the weights reflect the sample design, the Census Day noninterview adjustment, and Targeted Extended Search sampling.

Weighted P-Sample Persons (N_p):

The estimated population size from the P sample. For PES-C, the population estimate is the sum of the estimated nonmovers and inmovers:

$$N_p = N_n + N_i$$

For PES-A, used when fewer than 10 outmovers in a post-stratum, the population estimate is the sum of the estimated nonmovers and outmovers:

$$N_p = N_n + N_o$$

The PES-A or PES-C procedure is applied to individual post-strata. Therefore, for aggregates of post-strata, the weighted P-Sample person estimate is simply the sum of the post-stratum P-Sample person estimates.

Weighted P-Sample Matches (M):

The estimated number of P-sample matches. For PES-C, the estimated number of matches is the sum of the nonmover matches and the estimated number of mover matches based on the outmover match rate times the number of inmovers:

$$M = M_n + \frac{M_o}{N_o} \times N_i$$

For PES-A, used when fewer than 10 outmovers in a post-stratum, the estimated number of matches is the sum of the estimated nonmover and outmover matches:

$$M = M_n + M_o$$

The PES-A or PES-C procedure is applied to individual post-strata. Therefore, for aggregates of post-strata, the weighted P-Sample match estimate is simply the sum of the post-stratum P-Sample match estimates.

E-Sample Size:

The number of persons enumerated in the census for the A.C.E. sample area.

Correct Enumeration Sample Size:

The total number of E-Sample correct enumerations. A correct enumeration is a person enumerated in the A.C.E. sample area who is also determined by A.C.E. operations to have lived in the search area on Census Day. This is a count of the number of people with a correct enumeration probability greater than zero; that is, a correct enumeration count of confirmed residents and unresolved residents.

Weighted E-Sample Persons (N_e):

The weighted total number of E-Sample persons. These weights reflect the sample design and Targeted Extended Search.

Weighted Correct Enumerations (CE):

The weighted total number of E-Sample correct enumerations. These weights reflect the sample design and Targeted Extended Search.

Dual System Estimate (DSE):

An estimate of the population using E-sample and P-sample data and Census data. See equation (1).

Coverage Correction Factor (CCF):

The coverage correction factor for a post-stratum is calculated by dividing the DSE by the census count for that post-stratum. See equation (2). The A.C.E. estimates for any population at any level are obtained by multiplying the coverage correction factor by the census count within each post-stratum, then summing over all post-strata.

Net Undercount Percent (UC):

The difference between the DSE and the census count expressed as a percent of the DSE. See equation (3).

Standard Error:

A measure of the sampling error estimated using the A.C.E. variance estimation methodology. See Starsinic (2000) and Kim et al. (2000).

1.) Standard Error of the Coverage Correction Factor for a post-stratum:

$$SE(CCF) = \frac{\sqrt{Var(DSE)}}{C} \qquad (4)$$

2.) Standard Error of the Net Undercount Percent for a post-stratum:

$$SE(UC) = (100 - UC)\frac{\sqrt{VAR(DSE)}}{DSE} \qquad (5)$$

Coefficient of Variation (CV):

The standard error of the estimate divided by the estimate expressed as a percent.

1990 Tables

Underlying differences between the 1990 PES and the 2000 A.C.E. exist. Therefore, for the results located in Attachment C, four points are made:

1. The 1990 table layout is different than the 2000 tables for the P sample because the 1990 PES handled movers differently from 2000 by using Procedure B. Tables C-1 through C-4 show aggregate P-sample totals for sample size and estimated population. The P-sample weighted estimates reflect the PES sample design and household non-response. The E-sample weighted estimates reflect the PES sample design.

2. Group Quarters are included in all numbers in Attachment C, tables C-1 through C-4.

3. The term Data-Defined Persons is slightly different than its usage for the 2000 A.C.E. The difference from 1990 is "name" did not count as one of the 100 percent data items. Any two items plus name constituted a Data-Defined Person. As a simple example using just three arbitrary variables from the list of data items, the following table illustrates the difference between a 1990 PES Data-Defined Person and a 2000 A.C.E. Data-Defined Person.

As an example,

If an individual has self-identified using....			**Then the individual is a Data-Defined Person in....**
Name	Age	Sex	1990 and 2000
Name	Age		2000
	Age	Sex	2000
Name			None

4. In 1990, there were five Race/Origin groups based on single-race reporting:

- Non-Hispanic White & Other (including American Indian not on Reservation)
- Black
- Non-Black Hispanic (including American Indian not on Reservation)
- Asian & Pacific Islander
- American Indians on Reservation (including Alaska Native)

References

Griffin, R. (2000), "Accuracy and Coverage Evaluation Survey: Dual System Estimation," DSSD Census 2000 Procedures and Operations Memorandum Series #Q-20.

Haines, D. (2000a), "Accuracy and Coverage Evaluation Survey: Post-stratification for Dual System Estimation", DSSD Census 2000 Procedures and Operations Memorandum Series #Q-24.

Haines, D. (2000b), "Accuracy and Coverage Evaluation Survey: Computer Specifications for Person Dual System Estimation (U.S.)," DSSD Census 2000 Procedures and Operations Memorandum Series #Q-29.

Kim, J. K., Navarro, A., and Fuller, W. (2000), "Replication Variance Estimation for Multi-Phase Stratified Sampling," Unpublished Census Bureau Memorandum.

Starsinic, M. (2000), "Accuracy and Coverage Evaluation Survey: Variance Estimates by Size of Geographic Area," DSSD Census 2000 Procedures and Operations Memorandum Series B-11.

Table A-1: Census 2000 A.C.E. - 64 Post-Stratum Groups

Race/Hispanic Origin Domain Number*		Tenure	MSA/TEA	High Return Rate				Low Return Rate			
				N	M	S	W	N	M	S	W
Domain 7 (Non-Hispanic White or "Some other race")		Owner	Large MSA MO/MB	1	2	3	4	5	6	7	8
			Medium MSA MO/MB	9	10	11	12	13	14	15	16
			Small MSA & Non-MSA MO/MB	17	18	19	20	21	22	23	24
			All Other TEAs	25	26	27	28	29	30	31	32
		Non-Owner	Large MSA MO/MB	33				34			
			Medium MSA MO/MB	35				36			
			Small MSA & Non-MSA MO/MB	37				38			
			All Other TEAs	39				40			
Domain 4 (Non-Hispanic Black)		Owner	Large MSA MO/MB	41				42			
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB	43				44			
			All Other TEAs								
		Non-Owner	Large MSA MO/MB	45				46			
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB	47				48			
			All Other TEAs								
Domain 3 (Hispanic)		Owner	Large MSA MO/MB	49				50			
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB	51				52			
			All Other TEAs								
		Non-Owner	Large MSA MO/MB	53				54			
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB	55				56			
			All Other TEAs								
Domain 5 (Native Hawaiian or Pacific Islander)		Owner		57							
		Non-Owner		58							
Domain 6 (Non-Hispanic Asian)		Owner		59							
		Non-Owner		60							
American Indian or Alaska Native	**Domain 1** (On Reservation)	Owner		61							
		Non-Owner		62							
	Domain 2 (Off Reservation)	Owner		63							
		Non-Owner		64							

* For Census 2000, persons can self-identify with more than one race group. For post-stratification, persons are included in a single Race/Hispanic Origin domain. This does not change a person's actual response and all persons will be tabulated based on their actual response in the census.

Table A-2: Census 2000 A.C.E. - 7 Age/Sex Groups

Age	Male	Female
Under 18	1	
18 to 29	2	3
30 to 49	4	5
50+	6	7

Table B-1: 2000 A.C.E. Results--Total Race/Hispanic Origin Domain

Total	Domain 1 (AI on Res)	Domain 2 (AI off Res)	Domain 3 (Hispanic)	Domain 4 (Black)	Domain 5 (NH or PI)	Domain 6 (Asian)	Domain 7 (Wt or Oth)	Total
Census Counts								
Data-Defined Persons (DD)	987,654,321	This number	is for display	purposes	only.			
Insufficient Information (II)								
Total Persons (C)								
P Sample								
Nonmover Sample Size								
Inmover Sample Size								
Outmover Sample Size								
Weighted Nonmovers (N_n)								
Weighted Inmovers (N_i)								
Weighted Outmovers (N_o)								
Weighted Nonmover Matches (M_n)								
Weighted Outmover Matches (M_o)								
Weighted P-Sample Persons (N_p)								
Weighted P-Sample Matches (M)								
E Sample								
E-Sample Size								
Correct Enumeration Sample Size								
Weighted E-Sample Persons (N_e)								
Weighted Correct Enumerations (CE)								
Estimates								
Dual System Estimate (DSE)								
Standard Error (SE)								
Coefficient of Variation (CV) (%)								
Coverage Correction Factor								
Standard Error (SE)								
Coefficient of Variation (CV) (%)								
Net Undercount Percent (UC) (%)								
Standard Error								

Table B-2: 2000 A.C.E. Results–Owners by Race/Hispanic Origin Domain

Owners	Domain 1 (AI on Res)	Domain 2 (AI off Res)	Domain 3 (Hispanic)	Domain 4 (Black)	Domain 5 (NH or PI)	Domain 6 (Asian)	Domain 7 (Wt or Oth)	Total Owner
Census Counts								
Data-Defined Persons (DD)								
Insufficient Information (II)								
Total Persons (C)								
P Sample								
Nonmover Sample Size								
Inmover Sample Size								
Outmover Sample Size								
Weighted Nonmovers (N_n)								
Weighted Inmovers (N_i)								
Weighted Outmovers (N_o)								
Weighted Nonmover Matches (M_n)								
Weighted Outmover Matches (M_o)								
Weighted P-Sample Persons (N_p)								
Weighted P-Sample Matches (M)								
E Sample								
E-Sample Size								
Correct Enumeration Sample Size								
Weighted E-Sample Persons (N_e)								
Weighted Correct Enumerations (CE)								
Estimates								
Dual System Estimate (DSE)								
Standard Error (SE)								
Coefficient of Variation (CV) (%)								
Coverage Correction Factor								
Standard Error (SE)								
Coefficient of Variation (CV) (%)								
Net Undercount Percent (UC) (%)								
Standard Error								

Table B-3: 2000 A.C.E. Results—Non-Owner by Race/Hispanic Origin Domain

Non-Owners	Domain 1 (AI on Res)	Domain 2 (AI off Res)	Domain 3 (Hispanic)	Domain 4 (Black)	Domain 5 (NH or PI)	Domain 6 (Asian)	Domain 7 (Wt or Oth)	Total Non-Owner
Census Counts								
Data-Defined Persons (DD)								
Insufficient Information (II)								
Total Persons (C)								
P Sample								
Nonmover Sample Size								
Inmover Sample Size								
Outmover Sample Size								
Weighted Nonmovers (N_n)								
Weighted Inmovers (N_i)								
Weighted Outmovers (N_o)								
Weighted Nonmover Matches (M_n)								
Weighted Outmover Matches (M_o)								
Weighted P-Sample Persons (N_p)								
Weighted P-Sample Matches (M)								
E Sample								
E-Sample Size								
Correct Enumeration Sample Size								
Weighted E-Sample Persons (N_e)								
Weighted Correct Enumerations (CE)								
Estimates								
Dual System Estimate								
Standard Error (SE)								
Coefficient of Variation (CV) (%)								
Coverage Correction Factor								
Standard Error (SE)								
Coefficient of Variation (CV) (%)								
Net Undercount Percent (UC) (%)								
Standard Error								

Table B-4: 2000 A.C.E. Results–Age/Sex Groups

Age/Sex Groups	M & F 0 - 17	Males 18 - 29	Females 18 - 29	Males 30 - 49	Females 30 - 49	Males 50+	Females 50+	Total (National)
Census Counts								
Data-Defined Persons (DD)								
Insufficient Information (II)								
Total Persons (C)								
P Sample								
Nonmover Sample Size								
Inmover Sample Size								
Outmover Sample Size								
Weighted Nonmovers (N_n)								
Weighted Inmovers (N_i)								
Weighted Outmovers (N_o)								
Weighted Nonmover Matches (M_n)								
Weighted Outmover Matches (M_o)								
Weighted P-Sample Persons (N_p)								
Weighted P-Sample Matches (M)								
E Sample								
E-Sample Size								
Correct Enumeration Sample Size								
Weighted E-Sample Persons (N_e)								
Weighted Correct Enumerations (CE)								
Estimates								
Dual System Estimate (DSE)								
Standard Error (SE)								
Coefficient of Variation (CV) (%)								
Coverage Correction Factor								
Standard Error (SE)								
Coefficient of Variation (CV) (%)								
Net Undercount Percent (UC) (%)								
Standard Error								

Table C-1: 1990 PES Results--Total by Race/Origin Group

Total	Non-Hispanic White/Other	Black	Non-Black Hispanic	Asian/ Pacific Islander	Am Indian on Reservation	Total
Census Counts						
Data-Defined Persons (DD)						
Insufficient Information (II)						
Total Persons (C)						
P Sample						
P-Sample Size						
Match Sample Size						
Weighted P-Sample Persons (N_p)						
Weighted P-Sample Matches (M)						
E Sample						
E-Sample Size						
Correct Enumeration Sample Size						
Weighted E-Sample Persons (N_e)						
Weighted Correct Enumerations (CE)						
Estimates						
Dual System Estimate						
Standard Error (SE)						
Coefficient of Variation (CV) (%)						
Coverage Correction Factor						
Standard Error (SE)						
Coefficient of Variation (CV) (%)						
Net Undercount Percent (UC) (%)						
Standard Error						

Table C-2: 1990 PES Results--Owner by Race/Origin Group

Owners	Non-Hispanic White/Other	Black	Non-Black Hispanic	Asian/ Pacific Islander	Am Indian on Reservation	Total Owner
Census Counts						
Data-Defined Persons (DD)						
Insufficient Information (II)						
Total Persons (C)						
P Sample						
P-Sample Size						
Match Sample Size						
Weighted P-Sample Persons (N_p)						
Weighted P-Sample Matches (M)						
E Sample						
E-Sample Size						
Correct Enumeration Sample Size						
Weighted E-Sample Persons (N_e)						
Weighted Correct Enumerations (CE)						
Estimates						
Dual System Estimate						
Standard Error (SE)						
Coefficient of Variation (CV) (%)						
Coverage Correction Factor						
Standard Error (SE)						
Coefficient of Variation (CV) (%)						
Net Undercount Percent (UC) (%)						
Standard Error						

Table C-3: 1990 PES Results---Non-Owner by Race/Origin Domain

Non-Owners	Non-Hispanic White/Other	Black	Non-Black Hispanic	Asian/ Pacific Islander	Am Indian on Reservation	Total Non-Owner
Census Counts						
Data-Defined Persons (DD)						
Insufficient Information (II)						
Total Persons (C)						
P Sample						
P-Sample Size						
Match Sample Size						
Weighted P-Sample Persons (N_p)						
Weighted P-Sample Matches (M)						
E Sample						
E-Sample Size						
Correct Enumeration Sample Size						
Weighted E-Sample Persons (N_e)						
Weighted Correct Enumerations (CE)						
Estimates						
Dual System Estimate						
Standard Error (SE)						
Coefficient of Variation (CV) (%)						
Coverage Correction Factor						
Standard Error (SE)						
Coefficient of Variation (CV) (%)						
Net Undercount Percent (UC) (%)						
Standard Error						

Table C-4: 1990 PES Results–Age/Sex Groups

Age/Sex Groups	M & F 0 - 17	Males 18 - 29	Females 18 - 29	Males 30 - 49	Females 30 - 49	Males 50+	Females 50+	Total (National)
Census Counts								
Data-Defined Persons (DD)								
Insufficient Information (II)								
Total Persons (C)								
P Sample								
Nonmover Sample Size								
Inmover Sample Size								
Outmover Sample Size								
Weighted Nonmovers (N_n)								
Weighted Inmovers (N_i)								
Weighted Outmovers (N_o)								
Weighted Nonmover Matches (M_n)								
Weighted Outmover Matches (M_o)								
Weighted P-Sample Persons (N_p)								
Weighted P-Sample Matches (M)								
E Sample								
E-Sample Size								
Correct Enumeration Sample Size								
Weighted E-Sample Persons (N_e)								
Weighted Correct Enumerations (CE)								
Estimates								
Dual System Estimate (DSE)								
Standard Error (SE)								
Coefficient of Variation (CV) (%)								
Coverage Correction Factor								
Standard Error (SE)								
Coefficient of Variation (CV) (%)								
Net Undercount Percent (UC) (%)								
Standard Error								

Table D-1: 2000 A.C.E. Results—Post-Stratum Group

Post-Stratum Definition	M & F 0 - 17	Males 18 - 29	Females 18 - 29	Males 30 - 49	Females 30 - 49	Males 50+	Females 50+	Total
Census Counts Data-Defined Persons (DD) Insufficient Information (II) Total Persons (C)	This table	will be	repeated	for 64 post-	stratum	groups.		
P Sample Nonmover Sample Size Inmover Sample Size Outmover Sample Size Weighted Nonmovers (N_n) Weighted Inmovers (N_i) Weighted Outmovers (N_o) Weighted Nonmover Matches (M_n) Weighted Outmover Matches (M_o) Weighted P-Sample Persons (N_p) Weighted P-Sample Matches (M)								
E Sample E-Sample Size Correct Enumeration Sample Size Weighted E-Sample Persons (N_e) Weighted Correct Enumerations (CE)								
Estimates Dual System Estimate (DSE) Standard Error (SE) Coefficient of Variation (CV) (%) Coverage Correction Factor Standard Error (SE) Coefficient of Variation (CV) (%) Net Undercount Percent (UC) (%) Standard Error								

Table E-1: 2000 A.C.E. Results-Net Undercount Percentage by Post-Stratum Group

Race/Hispanic Origin Domain Number*		Tenure	MSA/TEA	High Return Rate				Low Return Rate			
				NE	MW	S	W	NE	MW	S	W
Domain 7 (Non-Hispanic White or "Some other race")		Owner	Large MSA MO/MB								
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB								
			All Other TEAs								
		Non-Owner	Large MSA MO/MB								
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB								
			All Other TEAs								
Domain 4 (Non-Hispanic Black)		Owner	Large MSA MO/MB								
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB								
			All Other TEAs								
		Non-Owner	Large MSA MO/MB								
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB								
			All Other TEAs								
Domain 3 (Hispanic)		Owner	Large MSA MO/MB								
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB								
			All Other TEAs								
		Non-Owner	Large MSA MO/MB								
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB								
			All Other TEAs								
Domain 5 (Native Hawaiian or Pacific Islander)		Owner									
		Non-Owner									
Domain 6 (Non-Hispanic Asian)		Owner									
		Non-Owner									
Am. Indian or Alaska Native	**Domain 1** (On Reservation)	Owner									
		Non-Owner									
	Domain 2 (Off Reservation)	Owner									
		Non-Owner									

Table E-2: 2000 A.C.E. Results-CVs by Post-Stratum Group

Race/Hispanic Origin Domain Number*		Tenure	MSA/TEA	High Return Rate				Low Return Rate			
				NE	MW	S	W	NE	MW	S	W
Domain 7 (Non-Hispanic White or "Some other race")		Owner	Large MSA MO/MB								
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB								
			All Other TEAs								
		Non-Owner	Large MSA MO/MB								
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB								
			All Other TEAs								
Domain 4 (Non-Hispanic Black)		Owner	Large MSA MO/MB								
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB								
			All Other TEAs								
		Non-Owner	Large MSA MO/MB								
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB								
			All Other TEAs								
Domain 3 (Hispanic)		Owner	Large MSA MO/MB								
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB								
			All Other TEAs								
		Non-Owner	Large MSA MO/MB								
			Medium MSA MO/MB								
			Small MSA & Non-MSA MO/MB								
			All Other TEAs								
Domain 5 (Native Hawaiian or Pacific Islander)		Owner									
		Non-Owner									
Domain 6 (Non-Hispanic Asian)		Owner									
		Non-Owner									
Am. Indian or Alaska Native	**Domain 1** (On Reservation)	Owner									
		Non-Owner									
	Domain 2 (Off Reservation)	Owner									
		Non-Owner									